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EnviroSystems, Inc.  
P.O. Box 778  
Hampton, NH 03843-0778  
603-926-3345

March 20, 2012

Ms. Sandra Perry  
Triumvirate Environmental  
61 Inner Belt Road  
Somerville, Massachusetts 02143

Dear Ms. Perry:

Enclosed, please find one (1) copy of our report presenting the results of a toxicity test completed using an effluent sample collected from the Exxon Mobil Terminal located in Everett, Massachusetts during March 2012. Acute toxicity was evaluated using the marine species, *Americamysis bahia*.

Please do not hesitate to call me, Kirk Cram or Petra Karbe should you have any questions regarding the report.

Sincerely,

EnviroSystems, Incorporated

A handwritten signature in black ink, reading "Kenneth A. Simon".

Kenneth A. Simon  
President

Enclosure

WET Test Report Certification  
Report Number 21980-12-03  
One (1) copy + email

cc: Mr. Ernest Haynes - Exxon Mobil (1 copy)



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EnviroSystems, Inc.  
P.O. Box 778  
Hampton, NH 03843-0778  
603-926-3345

March 20, 2012

Mr. Ernest Haynes  
Exxon Mobil Oil Corporation  
52 Beacham Street  
Everett, Massachusetts 02149

Dear Mr. Haynes:

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WET Test Report Certification  
Report Number 21980-12-03  
One (1) copy + email

cc: Ms. Sandra Perry - Triumvirate Environmental (1 copy)

## **WHOLE EFFLUENT TOXICITY TEST REPORT CERTIFICATION**

### Permittee Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Executed on: \_\_\_\_\_

\_\_\_\_\_  
Authorized Signature

\_\_\_\_\_  
Print or Type Name

ExxonMobil Oil Corporation  
\_\_\_\_\_

Print or Type the Permittee's Name

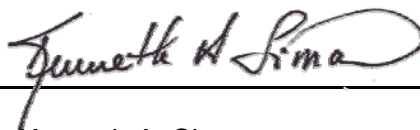
MA0000833  
\_\_\_\_\_

Type or Print the NPDES Permit No.

## **WHOLE EFFLUENT TOXICITY TEST REPORT CERTIFICATION (Bioassay Laboratory)**

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Executed on: March 20, 2012 \_\_\_\_\_

  
\_\_\_\_\_

Kenneth A. Simon  
President - EnviroSystems, Inc.

**TOXICOLOGICAL EVALUATION  
OF A TREATED INDUSTRIAL EFFLUENT  
BIOMONITORING SUPPORT FOR A NPDES PERMIT:  
March 2012**

**Exxon Mobil Oil Corporation**  
Everett, Massachusetts  
NPDES Permit Number MA0000833

Prepared For:

Exxon Mobil Oil Corporation  
52 Beacham Street  
Everett, Massachusetts 02149

Prepared By:

EnviroSystems, Incorporated  
One Lafayette Road  
Hampton, New Hampshire 03842

March 2012  
Reference Number Exxon Mobil21980-12-03

## STUDY NUMBER 21980

### EXECUTIVE SUMMARY

The following summarizes the results of an acute exposure bioassay performed during March 2012 in support of the NPDES biomonitoring requirements of the Exxon Mobil terminal located in Everett, Massachusetts. An acute definitive assay was completed using the marine species, *Americamysis bahia*.

*A. bahia* were  $\leq 5$  days old at the start of the test. Dilution water, provided by ESI, was from the Hampton-Seabrook Estuary. This water is classified as SA-1 and has been used to culture marine test organisms since 1981.

Samples were received under chain of custody in good order. All sample receipt, test conditions and control endpoints were within protocol specifications except where otherwise noted. The results presented in this report relate only to the samples described on the chain(s) of custody and sample receipt log(s).

Results from the acute exposure assay and their relationship to permit limits are summarized in the following matrix.

#### Acute Toxicity Evaluation

Species	Exposure	LC-50	A-NOEC	Permit Limit (LC-50)	Meets Permit Limit	Assay Meets Protocol Limit
<i>Americamysis bahia</i>	48 Hours	>100%	100%	>50%	Yes	Yes

**TOXICOLOGICAL EVALUATION  
OF A TREATED INDUSTRIAL EFFLUENT  
BIOMONITORING SUPPORT FOR A NPDES PERMIT:  
March 2012**

**Exxon Mobil Oil Corporation**  
Everett, Massachusetts  
NPDES Permit Number MA0000833

## **1.0 INTRODUCTION**

This report presents the results of an acute toxicity test completed on an effluent sample collected from the Exxon Mobil terminal located in Everett, Massachusetts. The sample was provided by Triumvirate Environmental, Somerville, Massachusetts. Testing was based on programs and protocols developed by the US EPA (2002) and involved completing a 48 hour acute toxicity test with the marine species, *Americamysis bahia*. Testing was performed at EnviroSystems, Incorporated (ESI), Hampton, New Hampshire in accordance with the provisions of the NELAC Standards (2003).

Acute toxicity tests involve preparing a series of concentrations by diluting effluent with control water. Groups of test animals are exposed to each effluent concentration and a control for a specified period. In acute tests, mortality data for each concentration are used to calculate (by regression) the median lethal concentration, or LC-50, defined as the effluent concentration which kills half of the test animals. Samples with high LC-50 values are less likely to cause significant environmental impacts. The acute no observed effect concentration (A-NOEC) provides information on the effluent concentration having minimal acute effects in the environment and is defined as the highest tested effluent concentration that causes no significant mortality.

## **2.0 MATERIALS AND METHODS**

### **2.1 General Methods**

Toxicological and analytical protocols used in this program follow procedures primarily designed by the EPA to provide standard approaches for the evaluation of toxicological effects of discharges on aquatic organisms, and for the analysis of water samples. See Section 4.0 for a list of references.

### **2.2 Test Species**

When necessary, *A. bahia* were acclimated to approximate test conditions prior to use in the assay and then transferred to test chambers using a large bore glass pipet, minimizing the amount of water added to test solutions.

### **2.3 Effluent and Laboratory Water**

Effluent collection information is provided in Table 1. Samples were stored at 4°C and warmed to 25±1°C prior to preparing test solutions. Effluent used in the *A. bahia* assay was salinity adjusted to 25±2 ppt using artificial sea salts according to protocol (EPA 2002). Laboratory water was collected from the Hampton/Seabrook Estuary. This water is classified as SA-1 and has been used to culture marine test organisms since 1981.

Total residual chlorine (TRC) was measured by amperometric titration (MDL 0.02 mg/L) in the effluent sample. Samples with ≥0.02 mg/L TRC were dechlorinated using sodium thiosulfate (EPA 2002).

### **2.4 Acute Toxicity Tests**

Test concentrations for the assay were 100%, 50%, 25%, 12.5%, and 6.25% effluent. The 48 hour toxicity tests were conducted at 25±1°C with a photoperiod of 16:8 hours light:dark. Test chambers for the acute assays were 250 mL glass beakers containing 200 mL test solution in each of 4 replicates with 10 organisms/replicate. Survival and dissolved oxygen were measured daily in all replicates. Temperature,

salinity pH and specific conductivity were measured daily in one replicate of each test treatment.

## 2.5 Data Analysis

Data analysis involved, as required, determination of LC-50 values using CETIS, Comprehensive Environmental Toxicity Information System, software. The program computes LC-50 values using the Spearman-Kärber and Linear Regress (Probit) methods following protocol guidelines. If survival in the highest test concentration was >50%, LC-50 values were obtained by direct observation of the raw data. The A-NOEC was determined as the highest test concentration which caused no significant mortality.

## 2.6 Quality Control

As part of the laboratory quality control program, standard reference toxicant assays are completed on a regular basis for each test species. These results provide relative health and response data while allowing for comparison with historic data sets. See Table 2 for details.

## 3.0 RESULTS AND DISCUSSION

Results of the acute exposure bioassay completed using *A. bahia* are summarized in Table 3. Effluent and dilution water characteristics are presented in Table 4. Toxicity test summary sheets are included after the tables. Support data, including copies of laboratory bench sheets, are included in Appendix A.

Minimum test acceptability criteria require  $\geq 90\%$  survival in the control concentrations. Achievement of these results indicate that healthy test organisms were used and that the dilution water had no significant adverse impact on the outcome of the assay. See the Executive Summary and Table 3 for test acceptability.

## 4.0 LITERATURE CITED

APHA. 1998. *Standard Methods for the Examination of Water and Wastewater*, 20<sup>th</sup> edition. Washington D.C.

*National Environmental Laboratory Accreditation Conference: Quality Systems*. Chapter 5. June 2003.

US EPA. 2002. *Methods for Measuring the Acute Toxicity of Effluents to Freshwater and Marine Organisms*. Fifth Edition. EPA-821-R-02-012.

US EPA. 2008. *Attachment G: NPDES Whole Effluent Toxicity Testing, Monitoring and Reporting Tips and Common Pitfalls*. US EPA Region I Offices, Boston, Massachusetts.

**TABLE 1. Summary of Sample Collection Information.  
Exxon Mobil Terminal Effluent Evaluation. March 2012.**

Sample Description	Type	Collection		Receipt		Arrival Temp °C
		Date	Time	Date	Time	
Effluent	Grab	03/08/12	1230	03/09/12	0945	2

**TABLE 2. Summary of Reference Toxicant Data.  
Exxon Mobil Terminal Effluent Evaluation. March 2012.**

Date		Endpoint	Value	Historic Mean/ Central Tendency	Acceptable Range	Reference Toxicant
<i>A. bahia</i>						
02/29/12	Survival	LC-50 - 48 Hr	23.8	21.7	16.0 - 27.4	SDS (mg/L)

Means and Acceptable Ranges based on the most recent 20 reference toxicant assays

**TABLE 3. Summary of Acute Evaluation Results.  
Exxon Mobil Terminal Effluent Evaluation. March 2012.**

Survival							
Species	Exposure	Lab	6.25%	12.5%	25%	50%	100%
<i>A. bahia</i>	48 hours	100%	100%	100%	100%	100%	97.5%

LC-50 Computation Technique					
Species	Exposure	Spearman-Kärber	Probit	Linear Interpolation	A-NOEC
<i>A. bahia</i>	48 Hours	NC	NC	NC	100%

**TABLE 4. Summary of Effluent and Diluent Characteristics.  
Exxon Mobil Terminal Effluent Evaluation. March 2012.**

PARAMETER	UNITS	EFFLUENT	LABORATORY WATER
pH - As Received	SU	7.32	8.13
pH- Salinity Adjusted	SU	7.79	-
Salinity - As Received	ppt	1	24
Salinity - Salinity Adjusted	ppt	25	-
TRC	mg/L	<0.02	<0.02
Total Solids	mg/L	640	28000
Total Suspended Solids	mg/L	1.9	16
Ammonia	mg/L as N	<0.1	<0.1
Total Organic Carbon	mg/L as C	5.8	<2
Aluminum, total	mg/L	<0.02	-
Cadmium, total	mg/L	<0.0005	-
Calcium, total	mg/L	64	-
Chromium, total	mg/L	<0.002	-
Copper, total	mg/L	<0.002	-
Lead, total	mg/L	0.002	-
Magnesium, total	mg/L	7.2	-
Nickel, total	mg/L	<0.002	-
Zinc, total	mg/L	0.015	-

Additional water quality and analytical chemistry support data are available in Appendix A.

## TOXICITY TEST SUMMARY SHEET

FACILITY NAME: Exxon Mobil Everett Terminal TEST START DATE: 03/09/12  
 NPDES PERMIT NO.: MA0000833 TEST END DATE: 03/11/12

TEST TYPE	TEST SPECIES	SAMPLE TYPE	SAMPLE METHOD
<input checked="" type="checkbox"/> Acute	<input type="checkbox"/> <i>Pimephales promelas</i>	<input type="checkbox"/> Prechlorinated	<input checked="" type="checkbox"/> Grab
<input type="checkbox"/> Chronic	<input type="checkbox"/> <i>Ceriodaphnia dubia</i>	<input type="checkbox"/> Dechlorinated	<input type="checkbox"/> Composite
<input type="checkbox"/> Modified Chronic (Reporting Acute Values)	<input type="checkbox"/> <i>Daphnia pulex</i>	<input type="checkbox"/> Chlorine Spiked in Lab	<input type="checkbox"/> Flow-thru
<input type="checkbox"/> 24 Hour Screen	<input checked="" type="checkbox"/> <i>Americamysis bahia</i>	<input type="checkbox"/> Chlorinated on Site	<input type="checkbox"/> Other
	<input type="checkbox"/> <i>Cyprinodon variegatus</i>	<input type="checkbox"/> Unchlorinated	
	<input type="checkbox"/> <i>Menidia beryllina</i>	<input checked="" type="checkbox"/> No Detectable Chlorine Upon Receipt	
	<input type="checkbox"/> <i>Arbacia punctulata</i>		
	<input type="checkbox"/> <i>Champia parvula</i>		
	<input type="checkbox"/> <i>Selenastrum capricornutum</i>		

### DILUTION WATER:

☐ Receiving water collected at a point upstream or away from the discharge, free from toxicity or other sources of contamination; Receiving Water Name: Island End River (Mystic River Watershed)

☒ Alternate surface water of known quality and hardness, to generally reflect the characteristics of the receiving water; Receiving Water Name: Hampton Estuary

☐ Synthetic water prepared using either Millipore Milli-Q or equivalent deionized water and reagent grade chemicals; or deionized water combined with mineral water.

☐ Artificial sea salts mixed with deionized water

☐ Deionized water and hypersaline brine

☐ Other

EFFLUENT SAMPLING DATES: 03/08/12 \_\_\_\_\_

EFFLUENT CONCENTRATIONS TESTED (%): 6.25%, 12.5%, 25%, 50%, 100%

Permit Limit Concentration: >50 %

Was the effluent salinity adjusted? Yes If "yes", to what level? 25 ppt

REFERENCE TOXICANT TEST DATE: 02/29/12 LC-50: 23.8 mg/L Sodium Dodecyl Sulfate

### PERMIT LIMITS AND TEST RESULTS

Test Acceptability Criteria

Mean Control Survival: 100%

#### LIMITS

LC-50: >50 %

A-NOEC: \_\_\_\_\_ %

C-NOEC: \_\_\_\_\_ %

IC- \_\_\_\_\_ %

#### RESULTS

LC-50 >100%

Upper Limit: -

Lower Limit: -

Method: Direct observation

A-NOEC 100%

C-NOEC -

IC- -

**APPENDIX A**  
**DATA SHEETS**  
**STATISTICAL SUPPORT**

<b>Contents</b>	<b>Number of Pages</b>
Methods Used in NPDES Permit Biomonitoring Testing	1
<i>A. bahia</i> Acute Bioassay Bench Sheet	2
<i>A. bahia</i> LC-50 Analysis and Survival Statistics	0
<i>A. bahia</i> Organism Culture Sheet	1
Preparation of Dilutions and Record of Meters Used	2
Analytical Chemistry Data Report	2
Sample Receipt Record	1
Chain of Custody	1
Total Appendix Pages	10

## METHODS USED IN NPDES PERMIT BIOMONITORING TESTING

Parameter	Method
<b>Acute Exposure Bioassays:</b>	
<i>Ceriodaphnia dubia</i>	EPA-821-R-02-012 2002.0
<i>Daphnia pulex</i>	EPA-821-R-02-012 2021.0
<i>Pimephales promelas</i>	EPA-821-R-02-012 2000.0
<i>Americamysis bahia</i>	EPA-821-R-02-012 2007.0
<i>Menidia beryllina</i>	EPA-821-R-02-012 2006.0
<i>Cyprinodon variegatus</i>	EPA-821-R-02-012 2004.0
<b>Chronic Exposure Bioassays:</b>	
<i>Ceriodaphnia dubia</i>	EPA-821-R-02-013 1002.0
<i>Pimephales promelas</i>	EPA-821-R-02-013 1000.0
<i>Cyprinodon variegatus</i>	EPA-821-R-02-014 1004.0
<i>Menidia beryllina</i>	EPA-821-R-02-014 1006.0
<i>Arbacia punctulata</i>	EPA-821-R-02-014 1008.0
<i>Champia parvula</i>	EPA-821-R-02-014 1009.0
<b>Trace Metals:</b>	
Trace Metals	EPA 200.7/SW 6010 and EPA 200.8/SW 6020
Hardness	Standard Methods 20 <sup>th</sup> Edition - Method 2340 B
<b>Wet Chemistries:</b>	
Alkalinity	EPA 310.2
Chlorine, Residual	Standard Methods 20 <sup>th</sup> Edition - Method 4500CLD
Total Organic Carbon	Standard Methods 20 <sup>th</sup> Edition - Method 5310C
Specific Conductance	Standard Methods 20 <sup>th</sup> Edition - Method 2510B
Nitrogen - Ammonia	Standard Methods 20 <sup>th</sup> Edition - Method 4500NH3G
pH	Standard Methods 20 <sup>th</sup> Edition - Method 4500H+B
Solids, Total (TS)	Standard Methods 20 <sup>th</sup> Edition - Method 2540 B
Solids, Total Dissolved (TDS)	Standard Methods 20 <sup>th</sup> Edition - Method 2540 C
Solids, Total Suspended (TSS)	Standard Methods 20 <sup>th</sup> Edition - Method 2540 D
Dissolved Oxygen	Standard Methods 20 <sup>th</sup> Edition - Method 4500-O G

Please visit our web site at [www.envirosystems.com](http://www.envirosystems.com) for a copy of our NH NELAP Accreditation and Massachusetts State Certification.



# ACUTE BIOASSAY DATA SUMMARY

STUDY: Z1980		SAMPLE RECEIVED 3/9/12		"AS RECEIVED" EFFLUENT AND DILUENT CHEMISTRIES																
CLIENT: Exxon Mobil		TEST ORGANISM: A. bahia		TRC	TS/S	AMM	TOC	ALK	HARD	SAL	PH	S/C	OTHER							
SAMPLE: Terminal Effluent		ORGANISM SUPPLIER ARO		see page 1 of 2																
DILUENT: Lab Salt		ORGANISM BATCH/AGE <5d		EFF	DIL															
SALINITY ADJUSTMENT RECORD: ML EFFLUENT + G SEA SALTS = 100% ACTUAL PERCENTAGE																				
CONC	REP	SURVIVAL			DO (mg/L)			pH (SU)			TEMP (°C)			S/C (µmhos/cm)			SALINITY (ppt)			COMMENTS
25%	A	10	10	10	6.8	6.4	6.3	8.00	8.15	8.17	24	24	24	38410	31450	40570	24	25	26	
	B	10	10	10	6.8	6.4	6.4													
	C	10	10	10	6.8	6.4	6.4													
	D	10	10	10	6.8	6.4	6.5													
50%	A	10	10	10	7.1	6.4	6.5	7.72	8.18	8.24	24	24	24	38570	31920	40590	25	26	26	
	B	10	10	10	7.1	6.3	6.5													
	C	10	10	10	7.1	6.3	6.4													
	D	10	10	10	7.1	6.4	6.6													
100%	A	10	10	10	8.0	6.6	6.6	7.79	8.28	8.36	24	24	24	31630	40100	40160	25	25	26	
	B	10	10	10	8.0	6.6	6.5													
	C	10	10	9	8.0	6.4	6.7													
	D	10	10	10	8.0	6.4	6.6													
DATE	3/9/12		3/10	3/11	3/9/12			3/10	3/11											
TIME	1615		1500	1505	1600			1415	1435											
INITIALS	w		CS	SS	w			CS	SS											



## Aquatic Research Organisms

Rec:  
3/9

## DATA SHEET

## I. Organism History

Species Americamysis bahia

Source: Lab reared ✓ Hatchery reared \_\_\_\_\_ Field collected \_\_\_\_\_

Hatch date 3.8.12 Receipt date \_\_\_\_\_

Lot number D30812MS Strain \_\_\_\_\_

Brood origination FLORIDA

## II. Water Quality

Temperature 25 °C Salinity ~27 ppt D.O. — ppm

pH 7.8 su Hardness        ppm Alkalinity        ppm

### III. Culture Conditions

Freshwater\_\_\_\_\_ Saltwater\_\_\_\_\_ Other\_\_\_\_\_

Recirculating      Flow through      Static renewal     

**DIET:** Flake food            Phytoplankton            Trout chow           

Artemia ✓ Rotifers \_\_\_\_\_ YCT \_\_\_\_\_ Other ENCY. SHRIMP DIET

Prophylactic treatments:\_\_\_\_\_

Comments: \_\_\_\_\_

#### IV. Shipping Information

Client: EST # of Organisms 640+

Carrier: \_\_\_\_\_ Date shipped 3-9-12

Biologist: M. H. Rosenqvist

## PREPARATION of DILUTIONS

STUDY: 21980		CLIENT: Exxon Mobil	
SPECIES: <i>A. bahia</i>			
Diluent: Lab Salt	Sample: E0		
Concentration	Vol. Eff.(mls)	Final Vol.(mls)	
Lab	0	800	
6.25%	50		
12.5%	100		
25%	200		
50%	400		
100%	800		
INITIALS:	v		
TIME:	1550		
DATE:	3/9/12		

# RECORD OF METERS USED

STUDY: Z1980		CLIENT: Exxon Mobil	
A.bahia			
Exposure (Hours)			
	0	24	48
Water Quality Station #	1	1	1
Initials / Date	W 3/9/12	CS 3/10	JS 3/11/12

Water Quality Station #1		Water Quality Station #2		COMMENTS
DO meter #	24	DO meter #	/	
DO probe #	90	DO probe #		
pH meter #	1097	pH meter #		
pH probe #	103	pH probe #		
S/C meter #	YS130E	S/C meter #		
S/C probe #	↓	S/C probe #		
Salinity meter #	↓	Salinity meter #		

Report No: 21980 SDG:  
 Project: Exxon Mobil  
 Sample ID: Effluent Start O1C  
 Matrix: Water  
 Sampled: 03/08/12 1230

Parameter		Result	Quant Limit	Units	Date Prepared	Date of Analysis	INIT/Method/Reference
Total organic carbon	21980-003	5.8	2	mg/L	03/12/12	03/12/12	EAL/SM 5310 C
Ammonia-N	21980-004	ND	0.1	mg/L as N	03/13/12 1433	03/13/12 1433	JLH/SM 4500-NH3 G
Aluminum, total	21980-002	ND	0.02	mg/L	03/14/12 1045	03/14/12	JLH/EPA 200.8
Cadmium, total	21980-002	ND	0.0005	mg/L	03/14/12 1045	03/14/12	JLH/EPA 200.8
Calcium, total	21980-002	64	0.05	mg/L	03/14/12 1045	03/14/12	JLH/EPA 200.8
Chromium, total	21980-002	ND	0.002	mg/L	03/14/12 1045	03/14/12	JLH/EPA 200.8
Copper, total	21980-002	ND	0.002	mg/L	03/14/12 1045	03/14/12	JLH/EPA 200.8
Lead, total	21980-002	0.002	0.0005	mg/L	03/14/12 1045	03/14/12	JLH/EPA 200.8
Magnesium, total	21980-002	7.2	0.05	mg/L	03/14/12 1045	03/14/12	JLH/EPA 200.8
Nickel, total	21980-002	ND	0.002	mg/L	03/14/12 1045	03/14/12	JLH/EPA 200.8
Zinc, total	21980-002	0.015	0.002	mg/L	03/14/12 1045	03/14/12	JLH/EPA 200.8
Total solids	21980-005	640	10	mg/L	03/08/12 1400	03/09/12 1000	EAL/SM2540B
Total suspended solids	21980-005	1.9	1	mg/L	03/08/12 1515	03/09/12 1145	EAL/SM 2540D

Notes:

ND = Not Detected

ESI

Report No: 21989  
Project: ESI

SDG:

Sample ID: Lab Salt 03/09/12  
Matrix: Water  
Sampled: 03/09/12 1540

Parameter		Result	Quant Limit	Units	Date Prepared	Date of Analysis	INIT/Method/Reference
Total solids	21989-006	28000	50	mg/L	03/14/12 1443	03/15/12 0810	EAL/SM2540B
Total suspended solids	21989-006	16	2.5	mg/L	03/14/12 1525	03/15/12 0900	EAL/SM 2540D
Total organic carbon	21989-002	ND	2	mg/L	03/12/12	03/12/12	EAL/SM 5310 C
Ammonia-N	21989-005	ND	0.1	mg/L as N	03/13/12 1509	03/13/12 1509	JLH/SM 4500-NH3 G


Notes:

ND = Not Detected

ESI

## SAMPLE RECEIPT AND CONDITION DOCUMENTATION

Page 1 of 1

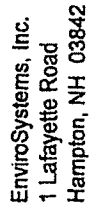
STUDY NO: 21980  
 SDG No: Exxon Mobil  
 Project: Exxon Mobil  
 Delivered via: ESI  
 Date and Time Received: 03/09/12 0945 Date and Time Logged into Lab: 03/09/12 1325  
 Received By: DW Logged into Lab by: EAL 

Air bill / Way bill: No Air bill included in folder if received? NA  
 Cooler on ice/packs: Yes Custody Seals present? NA  
 Cooler Blank Temp (C) at arrival: 2C Custody Seals intact? NA  
 Number of COC Pages: 1  
 COC Serial Number(s): A1007127  
 COC Complete: Yes Does the info on the COC match the samples? Yes  
     Sampled Date: Yes Were samples received within holding time? Yes  
     Field ID complete: Yes Were all samples properly labeled? Yes  
     Sampled Time: Yes Were proper sample containers used? Yes  
     Analysis request: Yes Were samples received intact? (none broken or leaking) Yes  
 COC Signed and dated: Yes Were sample volumes sufficient for requested analysis? Yes  
 Were all samples received? Yes Were VOC vials free of headspace? NA  
 Client notification/authorization: Not required

Field ID	Lab ID	Mx	Analysis Requested	Bottle	Req'd Pres'n	Verified Pres'n
Effluent Start O1C	21980-001	W	AB48AD StartSample	2x3750 P	4 C	Yes
Effluent Start O1C	21980-002	W	Total Metals Cd,Cr,Ni,Pb,Cu,Zn,Al,Ca,Mg;	250 P	HNO3	Yes
Effluent Start O1C	21980-003	W	TOC	1x40 G	H2SO4	Yes
Effluent Start O1C	21980-004	W	NH3;	125 P	H2SO4	Yes
Effluent Start O1C TSS-1	21980-005	W	TS,TSS-Low	2x1000 P	4 C	Yes
Outfall O1C TSS-2	21980-006	W	TSS	2x1000 G	4 C	Yes
Outfall O1C TSS-3	21980-006	W	TSS	1x3750 P	4 C	Yes

## Notes and qualifications:

Outfall O1C TSS-3 was received in a cube-container and was only half full



**Voice: 603-926-3345**  
**FAX: 603-926-3521**

ESI Job No: 21980

## CHAIN OF CUSTODY DOCUMENTATION

Client:	Triumvirate Environmental/Exxon Mobil	Contact: <i>Ernest Haynes</i> <del>Arthur Powers &amp; Sandra Perry</del>	Project Name:	Exxon Mobil
Report to:	Arthur Powers & Sandra Perry	Address: 61 Inner Belt Rd.	Project Number:	P0335 Task: 0001
Invoice to:	Sandra Perry	Address: Somerville, MA 02143	Project Manager:	<i>Ernest Haynes</i> <del>Arthur Powers &amp; Sandra Perry</del>
Voice:	617-715-8947	Fax: NA 617-628-8099	email: vsreng@triumvirate.com	
ERR				

[illegible]

Relinquished By: <i>[Signature]</i>	Date: 3-8-12	Time: 1355	Received By: <i>[Signature]</i>	Date: 3-8-12	Time: 1348
Relinquished By: <i>[Signature]</i>	Date: 3-8-12	Time: 1630	Received at Lab By: <i>[Signature]</i>	Date: 3-8-12	Time: 1545

**Comments:**

FR

200

COC Number A1007127

**Sample Delivery Group No:**

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- ⑦ TSS-hold was in culiciner, only half full. 3/12/2005
- ⑧ Sampled at same time/date as 005